

# Claims

- [c1] 1. A conveyor comprising:
- a modular belt constructed of rows of belt modules hinged together in series by hinge pins to form an endless belt loop having an outer conveying surface and an opposite inner surface between laterally spaced side edges;
  - a shaft aligned along an axis inside the belt loop;
  - a sprocket mounted on the shaft for rotation about the axis, wherein the sprocket includes:
    - a hub forming a bore for receiving the shaft;
    - an outer periphery forming circumferentially spaced drive surfaces;
    - an intermediate portion connecting the outer periphery to the hub;
  - wherein the outer periphery is arranged to contact the inner surface of the belt along an area of contact that varies laterally across the inner surface of the belt in each rotation of the sprocket.
- [c2] 2. A conveyor as in claim 1 wherein the outer periphery of the sprocket generally defines a circle lying in a plane

oblique to the axis.

- [c3] 3. A conveyor as in claim 1 wherein the outer periphery of the sprocket defines a first arc lying in a first plane oblique to the axis and a second arc lying in a second plane oblique to the first plane.
- [c4] 4. A conveyor as in claim 3 wherein the outer periphery of the sprocket further includes a connecting portion connecting the first and second arcs.
- [c5] 5. A conveyor as in claim 1 wherein the outer periphery of the sprocket generally defines a first arc and a second arc offset axially and circumferentially from each other.
- [c6] 6. A conveyor as in claim 5 wherein the outer periphery of the sprocket further defines a third arc circumferentially offset from the first arc.
- [c7] 7. A conveyor as in claim 5 wherein the outer periphery of the sprocket further defines a third arc coplanar with and circumferentially offset from the first arc and a fourth arc coplanar with and circumferentially offset from the second arc.
- [c8] 8. A conveyor as in claim 1 wherein the sprocket comprises two separable portions.
- [c9] 9. A conveyor as in claim 1 further comprising a fluid

spray positioned adjacent the shaft and arranged to direct a spray of fluid at the inner surface of the belt.

[c10] 10. A conveyor as in claim 1 wherein the shaft is a drive shaft for driving the belt.

[c11] 11. A conveyor comprising:

a modular belt constructed of rows of belt modules hingedly linked together in series by hinge pins to form an endless belt loop having an outer conveying surface and an opposite inner surface between laterally spaced side edges;

a shaft aligned laterally inside the belt loop and defining an axis of rotation;

a sprocket mounted on the shaft for rotation with the shaft about the axis of rotation, wherein the sprocket extends from a hub forming a bore for receiving the shaft to an outer periphery forming circumferentially spaced drive surfaces;

wherein the outer periphery is arranged to contact the inner surface of the belt along an area of contact that varies laterally across the inner surface of the belt in each rotation of the sprocket.

[c12] 12. A conveyor as in claim 11 wherein the outer periphery of the sprocket generally defines a circle lying in a plane oblique to the axis of rotation.

- [c13] 13. A conveyor as in claim 11 wherein the outer periphery of the sprocket defines a first arc lying in a first plane oblique to the axis of rotation and a second arc lying in a second plane oblique to the first plane.
- [c14] 14. A conveyor as in claim 13 wherein the outer periphery of the sprocket further includes a connecting portion connecting the first and second arcs.
- [c15] 15. A conveyor as in claim 11 wherein the outer periphery of the sprocket generally defines a first arc and a second arc offset axially and circumferentially from each other.
- [c16] 16. A conveyor as in claim 15 wherein the outer periphery of the sprocket further defines a third arc circumferentially offset from the first arc.
- [c17] 17. A conveyor as in claim 15 wherein the outer periphery of the sprocket further defines a third arc coplanar with and circumferentially offset from the first arc and a fourth arc coplanar with and circumferentially offset from the second arc.
- [c18] 18. A conveyor as in claim 11 wherein the sprocket comprises two separable portions.
- [c19] 19. A conveyor as in claim 11 further comprising a fluid

spray positioned adjacent the shaft and arranged to direct a spray of fluid at the inner surface of the belt.

[c20] 20. A conveyor as in claim 11 wherein the shaft is a drive shaft for driving the belt.

[c21] 21. A conveyor comprising:  
a modular belt constructed of rows of belt modules hinged together in series by hinge pins to form an endless belt loop having an outer conveying surface and an opposite inner surface between laterally spaced side edges;  
a shaft aligned along an axis inside the belt loop;  
a sprocket mounted on the shaft for rotation about the axis, wherein the sprocket extends from a hub forming a bore for receiving the shaft to an outer periphery contacting the inner surface of the belt;  
wherein at least a portion of the outer periphery defines a plane oblique to the axis.

[c22] 22. A conveyor as in claim 21 wherein the entire outer periphery is generally coplanar.

[c23] 23. A conveyor as in claim 21 wherein another portion of the outer periphery lines in another plane oblique to the axis.

[c24] 24. A conveyor as in claim 21 wherein the sprocket fur-

ther includes teeth spaced around the periphery of the sprocket.

[c25] 25. A conveyor as in claim 21 wherein the sprocket further includes pockets spaced around the periphery of the sprocket.

[c26] 26. A conveyor as in claim 21 further comprising a fluid spray positioned adjacent the shaft and arranged to direct a spray of fluid at the inner surface of the belt.

[c27] 27. A sprocket mountable on a shaft for rotation about an axis and engageable with a conveyor belt loop, the sprocket comprising:

- a hub forming a bore for receiving a shaft defining an axis;

- an outer periphery for contacting the inner surface of a belt loop;

- an intermediate portion connecting the outer periphery to the hub;

- wherein at least a portion of the outer periphery defines a plane oblique to the axis.

[c28] 28. A sprocket as in claim 27 wherein the entire outer periphery is generally coplanar.

[c29] 29. A sprocket as in claim 27 wherein another portion of the outer periphery lines in another plane oblique to the

axis.

- [c30] 30. A sprocket as in claim 27 wherein the sprocket further includes teeth spaced around the periphery of the sprocket.
- [c31] 31. A sprocket as in claim 27 wherein the sprocket further includes pockets spaced around the periphery of the sprocket.
- [c32] 32. A sprocket mountable on a shaft for rotation with the shaft about an axis of rotation and engageable with the inner surface of a conveyor belt loop, the sprocket comprising:
- a hub forming a bore for receiving a shaft defining an axis of rotation;
  - an outer periphery forming circumferentially spaced drive surfaces contacting the inner surface of a belt;
  - an intermediate portion connecting the outer periphery to the hub;
  - wherein the outer periphery is arranged to contact the inner surface of the belt along an area of contact that varies laterally across the inner surface of the belt in each rotation of the sprocket.
- [c33] 33. A sprocket as in claim 32 wherein the outer periphery of the sprocket generally defines a circle lying in a

plane oblique to the axis of rotation.

- [c34] 34. A sprocket as in claim 32 wherein the outer periphery of the sprocket defines a first arc lying in a first plane oblique to the axis of rotation and a second arc lying in a second plane oblique to the first plane.
- [c35] 35. A sprocket as in claim 34 wherein the outer periphery of the sprocket further includes a connecting portion connecting the first and second arcs.
- [c36] 36. A sprocket as in claim 32 wherein the outer periphery of the sprocket generally defines a first arc and a second arc offset axially and circumferentially from each other.
- [c37] 37. A sprocket as in claim 36 wherein the outer periphery of the sprocket further defines a third arc circumferentially offset from the first arc.
- [c38] 38. A sprocket as in claim 36 wherein the outer periphery of the sprocket further defines a third arc coplanar with and circumferentially offset from the first arc and a fourth arc coplanar with and circumferentially offset from the second arc.
- [c39] 39. A sprocket as in claim 32 wherein the sprocket comprises two separable portions.



